

PE NUMBER: 0302015F

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PE TITLE: E-4B National Airborne Operations Center (NAOC)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0302015F E-4B National Airborne Operations Center (NAOC)				PROJECT 4777		
COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
4777 E-4B Aircraft Modernization	0	2,137	12,666	40,516	24,587	4,205	19,541	28,204	0	131,856
Quantity of RDT&E Articles	0	0	0	1	0	0	0	0	0	1

(U) A. Mission Description and Budget Item Justification

(U) This program encompasses modernization of National Airborne Operational Center (NAOC) essential infrastructure, mission equipment, and interior, as well as mandated Global Access, Navigation, and Safety/Global Air Traffic Management (GANS/GATM) modifications to the E-4B aircraft. The NAOC supports the National Command Authority (NCA) and Joint Chiefs of Staff with a worldwide, survivable and enduring node of the National Military Command System (NMCS) for the exercise of their national security responsibilities throughout the full spectrum of conflict. These modifications are vital in order to maintain mission effectiveness and efficiency. The upgrades: 1) replace the increasingly hard-to-support 1960s era communications and computer equipment (telecommunications switch, multiplexer, messaging systems, etc) on the aircraft with modern, reliable, digital systems that will be supportable for the planned life of the platform; 2) make the commander's console and battle staff workstations compatible with GCCS architecture and software; 3) provide sound dampening to eliminate the severe ambient noise problems that prevent normal communications in the briefing room, conference room, and battle staff area without using intercom headsets; and 4) provide GANS/GATM equipment, integration and testing.

(U) FY 1998 (\$ in Thousands):

- (U) \$0 Total

(U) FY 1999 (\$ in Thousands):

- (U) \$ 1,567 Engineering Trade Studies(e.g., E-4B modification and GANS/GATM Analysis)
- (U) \$ 328 System Engineering Support
- (U) \$ 172 Program Management Support
- (U) \$ 70 Identified as a source for SBIR
- (U) \$ 2,137 Total

(U) FY 2000 (\$ in Thousands):

- (U) \$ 6,796 Development of E-4B Modifications
- (U) \$ 4,670 Software Development; GCCS Integration
- (U) \$ 1,200 System Engineering and Program Management Support
- (U) \$ 12,666 Total

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0302015F E-4B National Airborne Operations Center (NAOC)	PROJECT 4777
<p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 3,894 Complete E-4B Modifications Development (Software and Hardware) - (U) \$ 17,300 Purchase Engineering Prototype - (U) \$ 12,410 Install Prototype on A/C #1 - (U) \$ 5,362 System Integration, Testing, and Documentation - (U) \$ 1,550 System Engineering, and Program Management Support - (U) \$ 40,516 Total <p>(U) B. Budget Activity Justification:</p> <p>(U) This program is in budget activity 7 - Operational System Development, Research Category 6.6 because the program is developing modifications for current operations systems.</p>		
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<p>(U) C. <u>Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: center;"><u>FY 1998</u></th> <th style="width: 10%; text-align: center;"><u>FY 1999</u></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 20%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: center;">0</td> <td style="text-align: center;">4,233</td> <td style="text-align: center;">17,570</td> <td style="text-align: center;">36,622</td> <td style="text-align: center;">87,798</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td style="text-align: center;">2,143</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Cong Reductions</td> <td></td> <td style="text-align: center;">-6</td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. SBIR</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogramming</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 1999 PB</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">-4,904</td> <td style="text-align: center;">3,894</td> <td style="text-align: center;">44,058</td> </tr> <tr> <td>(U) Current Budget Submit/ FY 2000 President's Budget</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2,137</td> <td style="text-align: center;">12,666</td> <td style="text-align: center;">40,516</td> <td style="text-align: center;">131,856</td> </tr> </tbody> </table> <p>(U) Significant Program Changes: FY99: \$ 70 identified as a source for SBIR. FY00: RDT&E and Procurement programs have been re-phased based on DepSecDef guidance..</p> <p>(U) D. <u>Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 7.5%; text-align: center;"><u>FY 1998</u></th> <th style="width: 7.5%; text-align: center;"><u>FY 1999</u></th> <th style="width: 7.5%; text-align: center;"><u>FY 2000</u></th> <th style="width: 7.5%; text-align: center;"><u>FY 2001</u></th> <th style="width: 7.5%; text-align: center;"><u>FY 2002</u></th> <th style="width: 7.5%; text-align: center;"><u>FY 2003</u></th> <th style="width: 7.5%; text-align: center;"><u>FY 2004</u></th> <th style="width: 7.5%; text-align: center;"><u>FY 2005</u></th> <th style="width: 7.5%; text-align: center;"><u>To Compl</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U)) Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F</td> <td style="text-align: center;">12,706</td> <td style="text-align: center;">9,291</td> <td style="text-align: center;">19,985</td> <td style="text-align: center;">35,560</td> <td style="text-align: center;">18,504</td> <td style="text-align: center;">33,945</td> <td style="text-align: center;">62,835</td> <td style="text-align: center;">39,651</td> <td style="text-align: center;">0</td> <td style="text-align: center;">232,477</td> </tr> </tbody> </table>								<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>	(U) Previous President's Budget	0	4,233	17,570	36,622	87,798	(U) Appropriated Value		2,143				(U) Adjustments to Appropriated Value						a. Cong Reductions		-6				b. SBIR						c. Omnibus or Other Above Threshold Reprogram						d. Below Threshold Reprogramming						(U) Adjustments to Budget Years Since FY 1999 PB	0	0	-4,904	3,894	44,058	(U) Current Budget Submit/ FY 2000 President's Budget	0	2,137	12,666	40,516	131,856		<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>	(U)) Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F	12,706	9,291	19,985	35,560	18,504	33,945	62,835	39,651	0	232,477
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<p>(U) E. <u>Acquisition Strategy:</u></p> <p>There are two contracts on the E-4B: a Contractor Logistics Support (CLS) contract for depot maintenance (O&M Air Force) and aircraft modifications (Aircraft Procurement Air Force). This contract was awarded to the Boeing Company after a full and open competition. The other contract was awarded sole source to the Boeing Company as the Original Equipment Manufacturer (OEM), and included the KC-10, VC-25, T-43, and others in addition to the E-4B.</p> <p>The development and prototyping of the E-4B upgrades will be accomplished under the Engineering Services Contractor as a Cost Plus Award Fee (CPAF) or Cost Plus Incentive Fee (CPIF) effort. The acquisition strategy for the production and installation of modification kits is TBD.</p> <p>(U) F. <u>Schedule Profile</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="4"><u>FY 1998</u></th> <th colspan="4"><u>FY 1999</u></th> <th colspan="4"><u>FY 2000</u></th> <th colspan="4"><u>FY 2001</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) Begin Engineering Trade Studies</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Complete Engineering Trade Studies</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Begin E-4B Modifications Development</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Complete E-4B Modifications Development</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>(U) Begin Software Development</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Complete Software Development</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>(U) Purchase Engineering Prototype for A/C #1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>(U)Begin Install Prototype</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table> <p>X Denotes Planned Event</p>													<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	(U) Begin Engineering Trade Studies							X										(U) Complete Engineering Trade Studies									X								(U) Begin E-4B Modifications Development										X							(U) Complete E-4B Modifications Development														X			(U) Begin Software Development										X							(U) Complete Software Development														X			(U) Purchase Engineering Prototype for A/C #1														X			(U)Begin Install Prototype															X	
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0302015F E-4B National Airborne Operations Center (NAOC)					PROJECT 4777	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
Engineering Trade Studies					0	1,567					
Identified as a source for SBIR					0	70					
Development of E-4B Modifications					0		6,796	3,894			
Software Development; GCCS Integration					0		4,670				
Purchase Engineering Prototype					0			17,300			
Install Prototype on A/C #1					0			12,410			
System Integration and Testing					0			5,362			
System Engineering and Program Management Support					0	500	1,200	1,550			
(U) Total						2,137	12,666	40,516			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR							70				70
<u>Product Development Organizations</u>											
Boeing	CPAF/CPIF	Feb 97	TBD	TBD	0	0	1,567	11,466	38,926	73,367	125,326
<u>Support and Management Organizations</u>											
ANSER	T & M	Jan 99	N/A	N/A	0	0	328	338	348	700	1,714
TRW	T & M	Oct 98	N/A	N/A			150	825	1,160	2,320	4,455
Misc	TBD	Various	TBD	TBD			22	37	42	50	151
<u>Test and Evaluation Organizations</u>											
NSA/FAA	MIPR	N/A	TBD	TBD	0	0	0	0	40	100	140
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 1999			
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(U) B. <u>Budget Acquisition History and Planning Information</u> Continued (\$ in Thousands)										
Government Furnished Property:										
Item	Contract Method/Type or Funding	Award or Obligation	Delivery	Total Prior to	Budget	Budget			Budget to	Total
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>		None								
<u>Support and Management Property</u>		None								
<u>Test and Evaluation Property</u>		None								
Identified as a source for SBIR						70				70
Subtotal Product Development						1,567	11,466	38,926	73,367	125,326
Subtotal Support and Management						500	1,200	1,550	3,070	6,320
Subtotal Test and Evaluation								40	100	140
Total Project						2,137	12,666	40,516	76,537	131,856
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